

## Claims

1. A clamping and adjustment apparatus for a cutting tool, particularly according to one of the claims 23 to 29, comprising;
  - 5 a plate-shaped cutter insert being prestressable and fastenable by means of a prestressing and fastening device defining a tension screw with its bottom surface against a seat surface such that it is supported with lateral wall sections in a positionally fixed manner on a cutter support, comprising:
    - an adjustment wedge which can be actuated by means of a pressure screw in a
 10 direction (V) that extends essentially parallel to the seat surface; and
 wherein said adjustment wedge is accommodated in the cutter support in a form-fitted and displaceable manner over which the cutter insert is supported and adjusted.
2. The clamping and adjustment apparatus according to claim 1, wherein the cutter
 15 insert is pressable by means of a grip head by the prestressing and fastening device with a first lateral wall section against an adjustment wedge surface of the adjustment wedge.
3. The clamping and adjustment apparatus according to claim 1, wherein the cutter
 20 insert is pressingly prestressable and fastenable by means of a grip head in the closed state of the prestressing and fastening device with a second lateral wall section formed at an angle to the first lateral wall section against a guide stop arrangement, including a guide surface on the cutter support.
4. The clamping and adjustment apparatus according to claim 3, wherein a sharp-
 25 edged corner of the cutter insert is bordered by the adjustment wedge surface and the guide surface on which the lateral walls of the cutting insert are supported essentially all over, the displacement direction (V) of the adjustment wedge deviating maximally  $75^\circ$  from the axial direction (A), preferably by an angle ( $\varphi$ ) of maximally  $15^\circ$  or being equal to the axial direction (A) of the tool.

5. The clamping and adjustment apparatus according to one of the preceding claims, wherein between the adjustment wedge surface and the actuation direction (V) of the adjustment wedge, a wedge angle ( $\alpha_1$ ;  $\alpha_3$ ;  $\alpha_6$ ) of about between  $1^\circ$  and  $50^\circ$ , particularly between  $5^\circ$  and  $25^\circ$ , is provided;
- 5 6. The clamping and adjustment apparatus according to one of the preceding claims, wherein the pressure screw is arranged acting at an angle with respect to the adjustment wedge surface on a actuation wedge by means of which the adjustment wedge is actuatable.
- 10 7. The clamping and adjustment apparatus according to claim 6, wherein the actuation wedge and the adjustment wedge are arranged in a common wedge receptacle extending in the displacement direction (V).
- 15 8. The clamping and adjustment apparatus according to claim 7, wherein the adjustment wedge and the actuation wedge are formed as recesses on a single-piece double wedge pin.
9. The clamping and adjustment apparatus according to one of the claims 6 to 8,
- 20 wherein the pressure screw extends from the tool perimeter essentially radially towards the tool axis (A).
10. The clamping and adjustment apparatus according to claim 8 or 9, wherein the recesses on the double wedge pin are formed to be wedge-shaped.
- 25 11. The clamping and adjustment apparatus according to claim 9, wherein the actuation wedge is formed by a conical recess.
12. The clamping and adjustment apparatus according to claim 10, wherein pressure
- 30 screw has a front-side pressure surface which is formed to be conical surface-shaped so that the pressure screw abuts rotatably on its pressure surface on the actuation wedge.

13. The clamping and adjustment apparatus according to claim 12, wherein the cone angle of the pressure surface corresponds to the cone angle of the conical recess so that the pressure screw abuts in a line shape on an actuation wedge surface.

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14. The clamping and adjustment apparatus according to one of the claims 9 to 11, wherein the pressure screw is pressable on the front side on a coaxially guided pressure wedge which has a pressure surface for pressure transfer to the actuation wedge surface of the actuation wedge.

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15. The clamping and adjustment apparatus according to claim 14, wherein the pressure surface on the pressure wedge is adapted to the actuation wedge surface such that it abuts two-dimensionally.

15 16. The clamping and adjustment apparatus according to one of the claims 6 to 15, wherein the adjustment wedge angle ( $\alpha_1$ ;  $\alpha_3$ ;  $\alpha_6$ ) is smaller than the actuation wedge angle ( $\beta_1$ ;  $\beta_3$ ).

17. The clamping and adjustment apparatus according to one of the claims 8 to 16,  
20 wherein the adjustment wedge surface and the actuation wedge surface are provided concavely on the double wedge pin.

18. The clamping and adjustment apparatus according to one of the claims 8 to 16,  
wherein the adjustment wedge surface and the actuation wedge surface are provided  
25 convexly on the double wedge pin.

19. The clamping and adjustment apparatus according to one of the claims 8 to 18, wherein the double wedge pin is formed as a cylinder pin and is arranged in a corresponding wedge receptacle drill hole.

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20. The clamping and adjustment apparatus according to one of the claims 8 to 18, wherein the double wedge pin is arranged as a pin with a trapezoidal cross-section, which is arranged perpendicularly to the seat surface secured in a corresponding wedge receptacle.

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21. The clamping and adjustment apparatus according to one of the preceding claims, wherein an ejection spring whose spring force acts contrary to the displacement direction (V) against the adjustment wedge.

10 22. The clamping and adjustment apparatus according to one of the preceding claims, wherein a limiting stop which limits the maximum displacement ( $\Delta k$ ) of the adjustment wedge.

23. A rotationally driven cutting tool, with at least one clamping and adjustment  
15 apparatus particularly according to one of the claims 1 to 22, wherein the plate-shaped cutter insert is prestressable and fastenable by means of a tension screw with its bottom surface against a seat surface such that it is supported with a first lateral wall section in a positionally fixed manner on a surface of the clamping and adjustment apparatus, and wherein the tension screw is screwed down through a through hole with a nut part which  
20 is displaceably supported in the cutter support in a nut part guide receptacle with a degree of freedom in a nut part guide direction (E) which has a component ( $E_k$ ) perpendicular to the first lateral wall section.

24. The cutting tool according to claim 23, wherein the nut part guide receptacle is a  
25 drill hole introduced in nut part guide direction (E) from out of the outer circumference of the cutter support and the nut part is a pin which is displaceable in the drill hole.

25. The cutting tool according to claim 23 or 24, wherein the cutter insert is supported on a second lateral wall section on a guide surface, the guide direction (E) having a  
30 component ( $E_r$ ) perpendicular to the second lateral wall section.

26. The cutting tool according to claim 24, wherein the nut part guide receptacle extends towards a sharp-edged corner of the cutter insert which is bordered by the first and the second lateral wall section.
- 5 27. The cutting tool according to one of the claims 23 to 26, wherein the guide direction (E) has a component ( $E_s$ ) in the direction of the axis (S) of the tension screw.
28. The cutting tool according to one of the claims 23 to 27, wherein a ratio of the component ( $E_s$ ) in the direction of the axis (S) of the tension screw to the remaining  
10 components ( $E_k$ ,  $E_f$ ) of the guide direction (E) of about 10 - 50%.
29. The cutting tool according to one of the claims 23 to 28, wherein the tool is configured as a step tool, the cutting insert to be set being provided on the step.
- 15 30. A tool cartridge for installation in a cutting tool, according to one of the claims 23 to 29, wherein a plate-shaped cutter insert is prestressable and fastenable by means of a prestressing and fastening apparatus, particularly a tension screw, with its bottom surface against a seat surface such that it is supported with lateral wall sections in a positionally fixed manner on the cartridge, and wherein an adjustment wedge which is actuated by  
20 means of a pressure screw, said adjustment wedge accommodated in the tool cartridge in a form-fitted and displaceable manner over which the cutter insert is supported with a first lateral wall section.
31. The tool cartridge according to claim 30, wherein a tension screw for positionally-  
25 determined fastening of the tool cartridge on the tool.
32. The tool cartridge according to claim 30, wherein a second clamping and adjustment apparatus with which the axial position of the tool cartridge is set on the tool.